Excel in spreadsheets came about. How old do you think spreadsheets are? Ten years? 20? 50? 100? 100, yes. 100 years? Triple M. Go back almost 300 years. for cheese. They were used to make calculations about certain information. How many sacks of flour did I produce today? Or how many bushes of corn have done? All right? You were used by merchants for a long time. People started using them to do things way before we had computers, calculators, or any other electronic devices, okay? So what a spreadsheet is, and it was all done on paper, okay? It's an accounting. He's a jargon, okay? It can be spelled spreadsheet separately or put together, okay? That's sweet, that's how they started using it, okay? Way before we had any calculators or anything else. And something more than a large sheet of paper, with columns and rows, that lays everything out about a transaction for a business person to examine. It spreads or shows all of the costs, income taxes, and et cetera like that, a single sheet of paper for a manager to look at and making decisions. Okay? That's who it was, piece of paper. And again, with that, put 300 years back in the Middle East. As we became more and more electronic involved, okay, you developed electronic spreadsheets to organize data and software, to define in columns and rows. Okay? And you can add up the information by using a formula or a function, which is a special formula, okay, to get the answers you're looking for. The spreadsheet can summarize the data from many paper sources in one place and presents the information to help you make decisions. That's what this class is called decision making, okay? Make decisions about certain things that the spreadsheet contains. Okay, so that's what the electronic spreadsheet itself is need. And the reason for that has developed to this stage is that... Go back here a second. Spreadsheets on paper. If you were to take a finance course with a business course, going back, let's go back 50 years ago. And I'd have like a war. 70 years ago, okay? We were in a classroom. Professor, and spreadsheet on the board, or he dictated to you, he had a book with spreadsheets and blank spreadsheets, and he told you from this date and here, here, here, here, here, here, here, here. And he will send you home to do the calculations. Now, going back probably prior to this 70 years back, you had to do all that calculation in your head. You know, about seven years ago, it's some push button calculators, and you can do that and help you do the calculations. In most cases, you have, make sure the calculations are right. Check the calculators. As we started to develop into more technological age, okay? It made the job a lot easier. But again, in a time, there's nothing there to help you do this rightsheet, okay? Until a couple savvy gentlemen, okay, so, okay, so you did the spreadsheet, you brought it to class, and the instructor said, Okay, this is it, right? This is right, that's right. Okay? And now he's gonna say, okay, you're on the spreadsheets. Okay? You put so many hours of work in, you put so many hours of work in, but the following week, you didn't show up one day. So I got to put these numbers in. So he would change the numbers that had to go on the data. to help calculate it out for, like, a month at a time. And that's what the spreadshes sees. So it's happening. People taking these classes, and spreadsheets, and getting very frustrated because the professor would give them a lot of data to change, and by changing the data, they had to change how the formulas were. Okay? So, computer age made things a little bit easier. Okay. You can actually see it with a big overall picture was, because of any cute. right? Little history. Back in 1978. I don't think any of you were born then, right? You know, he's had old, you know, only me. At Harvard University, two gentlemen. Daniel, Cripple, and Bob Frankston. One was a... business major, the other was a computer geek. He loved playing around with the early computers, and he was using an apple to eat with 32K of memory.

Your wristwatch, your phone, today has three or four times out, okay? The one who is an... business major said, This is ridiculous. My professor's making me change this thing every good time in the class, I'm spending so much time. All my friends out there, they're going partying on the weekends and having a good time. I'd like to have people do that. So the one who's a computer major, he was using an Apple 2E computer with about 32K memory. That's what it kind of time. He developed his program with five columns going up and down like this, and 20 rows going across. And that's about all he needed at the time, because the professors wouldn't give them something that was so big that they couldn't handle it, okay? And by the way, does anybody know how big the largest spreadsheet is? In size? Any idea? 6,000 or something? Yeah, it's about the size of 3 foot ball fields. Pre big. We don't have a printer on this earth that'll print it all in one print, okay? You have to print sections of the doctor. And it's very large, okay? So, at that time, you were able to do this. He was able to get this science in, very quick, had a lot of spare time, gone partying, good time, you know, he's in college, he was in college, he was able to do. Okay? And then some of this other fellow students would say, What's going on here? We're spending hours trying to make these spreadsheets work for us. So, you know, that couple of friends of theirs, they said, Okay, well, you can use this, we'll show you how to do everything else. And then more people got interested in it. They said, Well, we can make money in this way. We'll sell it. So they developed this program called Visit Cal, which means visual calculator. Even some of the professors started saying, hey, these kids are getting this thing done real quick. Show us. We show the professors as well. So they're doing pretty good. That little business with themselves, they're making money, okay? A couple years later, down the road at MIT, okay? And you get remembered, Harvard, MIT, and a couple other places in Hartford, Massachusetts. They're right down the street from one another. Some people developed an appropriate called VP Planner, which is very much like this, I copied it, okay? So what you had. Is it, now? Maybe plan everything, look like this. Okay? Actually, the VP plan was a lot easier to understand, because it saved a lot more material. They got wind of this, the music house people, said, Hey, we got so many boos. stealing our ideas. What do you do? Can I need any idea? What would you do? Anything? I haven't been there. You've got a product that you made. You've working on it. What do you do? Ah, copyrighted. Well, guess what? Back in 1978 and '80, the copyright law only pertained to music, written materials in a book, plays, and things like that. I had no idea. what to do with electronic material. No idea whatsoever. It was new to the people who, as a matter of fact, the copy, write law wasn't changed until, I believe, the late '80s, conclude the things, as people who were writing programs and everything else, their ideas were being stolen left and right. We just did not have copyright. Okay, so there's no copyright. What else would you do? You got an idea? You marketed everything else, and he steals it. Soon. Ah, yeah. Businesses, they do that. Hey, stealing my ideas. But again, there was no copyright for electronic materials. The courts just didn't understand it. So, what happened is, this account bought out this guy. I try to sue him, but it's a long court battle, so they brought them out. That it was pretty good. Well, then a couple years later, Mitch Kapor, down the street again, another institution, developed a program called Lotus 1, 2, 3. And he replaced over here, they had these columns were numbered. One, two, three, four, five. Okay, and rows were numbered, one, two, three, four, five, six, and, oh, like that. So he replaced the column numbers with letters and a number. From A to Z. So you had 26 pounds yet. But when it got bigger, you know, to do, so they had to go back and labeled the next worksheet, A, A, A, B, A, C, something like that. So it

had, like you said, a whole bunch of figures here. Now, he also in replacing those, he also made his program available for the IBMPC format. IBM was just coming out at that point with a laptop. that was very popular at the time because it was cheaper than the Apple computers, okay? And it was backed by big IBM computers that were in business and everything else. So he used those two, and that, because he helped. Well, what do you do, okay? We sued these guys. What are you gonna do with this guy? You sue him, too, right? Well, again, because there were sufficient copyright laws at that time, this battle between here and here was taking time, lots of time, in the course. And they were just starting to develop, and the judges were just starting to announce my hands about how we can do this, okay? So, in the meantime, Bill Gates, a couple years later, who owned his big product was Microsoft Office, that's Bill Gates's product. He had... a word crossing English code word, okay? He had some graphic things like PowerPoint and everything else, but he did not have a spreadsheet. And he realized how important they are. Because back then, in those time trains, you didn't buy a package I could do today, like Microsoft's office. You bought individual pieces. All right? So people were buying, a matter of fact, my students would come to me and say, Oh, should I buy? Should I buy a word processing package? Should I buy a graphics package? And I would say, No, buy a spreadsheet package. You can do all that other stuff in the spansheet. So, again, while they're fighting this out a little bit, Bill Gates tells his people, I want you to develop this force, see how it works. So here is... this is a cow. Here is Excel, and you look at them, the other stuff, Lotus and other stuff, were just like this. Copy, exactly. Bill Gates's program looked a little like this. A little different, right? Slight difference. But for the most cases, they're pretty much the same. They took Bill Gates to court. Bill gets sent to the judge, I don't have the same program. It's different. And he says, Let me show you. All the other programs beforehand, when they started a formula, it started with a plus sign. like that. Phil Gates started his formulas with an equal sign. That's a difference. Okay? Phil Gates said, I don't have spreadsheets. I have work sheets. What's the difference? A sheet is a sheet is a sheet, right? But since the judge, it's a worksheet. Plus, I take three word sheets and put them together and call it a word book. And she other... Yeah, there was a couple of little things... Yeah, you know, different products. You can go, you feel your way. All right? do. And now, it's some of the most popular, especially programs, you're talking about. This is what a typical working expect. The only one called, it's like... rose, which go across this way. And your number from one to infinity gets, you can go as far as you want. And they made up a column. It goes down and helps more value. I mean, critically better, okay? And then it's like, it'll be in the alphabet, and then it repeats itself. So, this is the river, a row, and a power meat. It's 12 to cell, the lift, the cell weapon. So this is sell D tree. If you have a brain cell, for more than one, it takes on the name, you have to be adjacent to one. Okay? So this train is A5 through E5. All right? And that's how you take that into consideration. How about this? Is this a situation? You're not getting it yet? Maybe disagree with you. Nope. Mm hmm. Yes or no? Hey, hey, hey, hey. I agree, this is a spreadsheet. It is a spreadsheet. Yes. How many in fact, dated what you're going for, it doesn't have to be numbered, they understand. All right? So... I said, that looks like. This is more typically what you're going to see. Okay? You just see a bunch of names of people, so those are your labels, and maybe a number of hours in that of work. Okay. At times of pay rate, in calculation, to find the gross pay they have, if they have taxes, they'd have to come out of taxes, come out. Okay, you line up the net pay, and that's why you put it in a rage, you can do that, okay? That's pretty typical of what we want to do. But there's a lot of other things too. Think

about the spaceship. Okay. That's the history. You go back. Okay. can do it for you. Okay, yeah, then we'll be ready. This is chapter one of the textbook, okay? And, uh, taking notes from here. Copyright. I tend to go back. I've been doing this class for 15 years, okay? I liked some of the older... PowerPoints that explain things a little differently, and more commonly, but once you get into piercing, you have some things you can go back and look at, our PowerPoint programs, the new program that you're signing up for. If you need to find out what's going on, you can chapter anything else. However, they have 2 different types. They have one that's silent, you have to read. The other one is young woman who talks about the things that I'm gonna be talking about here. She tends to go very fast, and does not repeat herself sometimes when she needs the information. All right, so, we'll see here, I'll have different years of the PowerPoint combination that I use, some going way back, and some going pretty close to the newer stuff. So, spreadsheets are the kind of file, contains grid lines, columns, and rows, and displays the results of certain calculations you do, or functions, function is a specialized calculation that just does the job for you without having pretty foods, rather than say, this cell, plus this cell, times this cell over here, there's a calculation we can do adding the function, And it does that fully automatically. Okay? We're gonna learn, one of the most important ones you're gonna learn is a TMT function. Do you want to use that before? Okay, how much money do you owe a cargo? And something, if that's the only thing you learn in this class, I'll do that because I'm very handy for you. You go to a car dealer, and you give you a number, and if you know the PMT function, you can plug it in, you can see whether he's charging anymore for a car. I did that as dealership for me when my wife came home and said, I found it. Let's come, man. It's gonna some, it's gonna spoil me in the back. And they say, well, how much? Isn't it gonna be? I looked at it, and I said, No. True, it is a fancy function. I said, You know he's charging you $50 more a month? You went back in the dealership, and I came home with my wife, said, You put me in a car? And she told me she needed my husband said there something wrong? So I started, it's 20, 12, and I said, Can you talk to your manager? Andrew came over and said, Your sale question here. E my wife's a lot of information. And I already printed it out. Is it? And he said, Oh, wait a minute. Let me check and go back and, oh, maybe a small mistake. But I, okay. So if you know that, it's gonna be very interesting. It also helps you with a house, but, you know, the power one is just quick. Okay. So, um, I'm going to be interpreting data, and a single spreadsheet contains descriptive labels, rumeric values, and numbers, formulas and functions. These two things, they went through all the work for you. And you also allow to do graphic methods and data. If you're doing a word document, we only need a wrap or something, guess what? We automatically put you into, um, Excel to do that. Okay, so roads go horizontally, cross the page, pounds worth it down. We're a row and a cow meat. It's called paselle, okay? And a cell has an address or a reference to it. It's gonna have a letter and a number. It's gotta have a row number. Okay, that's the cell reference. find out that there are 3 different typ. One of you, all the time, all the relatives of the test, and that's because of the portfolio is in, and we move across the page, it down takes to automatically move around for you, so you can do the calculation. That's what you want. The other one is a fixed seller dress. And that allows you to go back to one space all the time, and then they have, what you call a mixed cell US. we're able to do a little later. Okay? So the columns are identified by layers from A to Z, and they have a, and a rose, a number from one to three. Okay? what you have. Up top of the worksheet now, okay, is the worksheet, or workbook, type. Cell location here, A1, row location, row 11. Now the bottom here is the worksheet name.

When you start one, it's going to start off as going to say sheet one. You do another one, key, too. Another 183. Well you don't know who sheets me, so usually you want to change the name down here of the word sheet name. So you're doing so. So for instance, if we're doing workheets, work book, rather, let's say, wages for our company, I might have one for a month of September. October, November, December, so each one would have a different name. You know, which one we're going into. Okay, this is the most important part here. It has to plan these worksheets or workbooks out with something in mind, and that is, what do I want as an end result? You have to put, in the input area, it sells a different cell location. You're going to put different values in. They're going to put different formulas that functions in. Okay? That you're gonna help you decide what the outfit is. Yeah, open area is where the results of the formulas and functions are contained. right? What do you know about computers? Put something in the computer and want to do something. What does it spit out? What? An out? And I'll put. I want to take E3 plus S4 divided by E6. Okay? What's it gonna do for me? Yeah, perform the math. How? I remember? Okay, so what's gonna do? Let's say, I have number two here, and a number three over here. And the number is 5 over here. So what's it gonna do? see that sorry. Oh, it's 'cause I do an E 6 point from each of those. No, close, but. First, you get my siren cook. Okay. And I did this, one of the addies together, writing this. There's a sequence that has to go. Yeah, uh, you know, do the random place and then you... Exactly. And the reason, if I wanted to do it the other way, I need to do this foot, this, and this together, so the different person. And we'll see that come up in a minute. We're talking about different outcomes, okay? But anyway, here's a thing. I had a colleague of mine, I was here full time, and I've been teaching his class for a long time. He said, I need a spreadsheet program to show people what kind of educational tests I'm doing. So he says, okay, Ken, what do you want to do? This, this, this, and this. Okay? Okay, see you on it, it's just, that thing together. He started using it. And a month later, he comes back, it's not everything. It's not. So, why not? He said, Well, because this, this, this, this, but it doesn't do that. Why doesn't it do that?? What do you know about computers? They spit back the information that you ask for, right? If you didn't ask for this, it's not gonna happen. Okay? Now, now we're getting into AI. It's getting a little more sophisticated, but back then, and even now, if you don't tell the computer what to do, it's not gonna do it. Right? Because I always tell all my students, My definition of this is a dumb, stupid machine. Because it doesn't do anything if somebody has any problems it to do. Right? If you don't program the property, it's what they do, okay? Take it that way. All right. So, sometimes you have to think about this first before you start putting data. right? Okay, what you're gonna be doing is entering labels, and values, and formulas are the same, okay? The labels, and that, you usually go on the left hand side. The formulas, okay, are infinite because of cell locations. Okay? And you want to have some descriptive titles in it, the people over formula. So there's types of data you can put in text, there's text material, with letters and numbers, symbols and other spaces. Values are just numbers, okay? And then the dates come up, and there's 2 or 3 different ways to commit dates to get right into. In a minute or so, I'll show you what auto fill comes, okay? That's an interesting process. Now, up along your, uh, top, uh, formula cars, you know, people who can be done, who have things that can insert extra rows or power, or delete extra rows in power. And you're gonna do. And also, you can clear different materials there. A formula is nothing more than a combination of cells or address, do mathematical operations, or function. For example, A1 plus A2, you might take the value of A1 and add it A2. Okay? And we do that. This one over here is

saying we take the value in C2, and we multiply by 5. And all formulas can function start with, sorry. This will work a few times, but it may not work all the time, because what you want to do, hey, this is show you here, we're taking this 3%, multiplying, and time exists, we get the end results. What you really want to do is, again, in the addition to crash location division, this is, like, better known than black. Please excuse my deer on salary. We started... It's better off to you, A1 plus V1, then saying 5 plus V1. This will work. until somebody comes in and says, wait a minute, that number five, we're gonna change it to something else. But if you have defined in that cell location over there, and you change it, the formula here will always be. Right? So it's better to use the cell location, A1, B1 over here, and to use a number, okay? Now, the only time you can get away, sometimes using a number, if it's a number that will not change at all. For instance, what's the average number of hours a person works to me? 40? 40? Can you get away using 40? How many months are in a year? Well, that's not gonna change. For some cases, you'll be avoiding the only kind of number you need, using a number in the form, as opposed to you being cocaine, okay? Yes, even through, my dear, our travel... First time I can make a unicorn, I feel so, uh, five years. I think the point there would be, about the parentheses. And what happened is, you know, over here, except the entire risk. You have to go first. So, the result, when people add up, they'll be like, okay? We wrote a lot of programs yesterday. You just kept going up. Over here, you can see here. We have A, 1, plus A, 2. That's going to be four, multiplied by 83. So the way this works is that 5 plus 2, the numbers up here. Okay? It multiplied together. Okay? And then they add it hand to it. Whereas over here, since you wouldn't really want to, you want to put the princess around, so this happens first. Then the multiplication. Okay, auto fill, right? Would you like to this now? Okay. Here, some thing is that you can do to make your work go faster. Autofill is one. works with certain data. You select here, you want to put the months of the year across the stretchy. So what you do, you click on one in January. And if you noticed on the right hand, lower right hand corner, is a little square, is green. It used to be black, it changed to green. Otherwise you did that, but you did. Did you cross hairs on it? He was down like this. Those are all the ones you need. Think like those, don't be a little tight. Especially if you throw a tight just like me, do the same thing over here with Monday. Okay. Or winter. Let me take this with you. You need a season? It's not one of the things they pick. So, days of the week, months of the year, we're over here, if you just have a simple number like this, I'll give you the number, okay? If you have a series of numbers, you wanna do something like this. Slip the 2 of them. Let me do this. I will fill. All even numbers. Okay? Over here, you can do the same thing. Patrice. This one, down here, have any of you ever worked in construction business? Studs that have to go on walls have to be 16 inches on center. So, I have the first two numbers here. So, I want to know where the studs are gonna go on the wall. Tell me how far on it anymore. Just little things like that. Oh, that's all. this. Okay, let's go to one. Um, now, there's another thing here, another good thing, is there's certain shortcuts that you can do with XL. Other than some of the things that are on the keyboard, like home TV, page it up, page down, some of the things, and there's only two that I really have to say. One is the F4T, which allows us to go from an absolute cell address to a mixed cell address to a relative cell address. That's a handy key. But the other one is my girlfriend, Hilda, here. You use a control key, and Tilney key, which is just above your tab key. When you press the two of those together, it goes from this, because when you do some spreadsheets, all you're gonna see is the results of the formulas. You don't even see the formulas up top when they point to it. But if you want to see all the

formulas in the spreadsheet, hit the control until the key, it toggles over to all the cell for the function of the system out here. So if you find out you're making an error, and it's not coming out right, it's a control and utility team, you know, show the whole point. You wanna go back, take control, Philly again, and leave that. Okay? Yeah, the formula is the full calculation... We can insert columns and rows in the insert button here. We can also delete columns in those. Now, the column with, if you type something in your power, and all of a sudden it looks a little weird, you get something that you people call hashtags. I call it hound signs. Okay? So what does that indicate? No, right? What? Numbers. No. ma'am. You type something in, and instead of the results showing up, you get these hatchtag marks. Why? Yeah.? No, you probably put the right air information. The problem is, how has food fit? They start out with a whisper, 8 point something, and it's in pixels. You can't really, we figured it. So if you want to make sure something fits, I told you, you see, the first power over here, these, the words all come out. You go up to the top where the letters are, get your crosshair marks, and move it backward forward, depending on when you want to enlarge it for shortening. Okay? So if you see those little, what you call hashtags, means the number's there, but it's too wide for the column. And the first time you type it in, it might work, because you type it in just like this, and it fits. But when we go to format the data, which means we want to put dollar signs in, and number of parenthes and everything else, it may add some extra things to that power in the hashtags. Then you want to expand it. Another time, they're gonna actually put the column with, they're gonna want a certain number in there. This works out all right. You try to have a pretty steady hand and get the piece where you want. All right? Same thing with row heights, okay? When you have a range of cells, arrange your cells as a rectangular range of data, so this is a range of cells in here. Okay. This is a range of cells in here, even though it's a square, and this is a range of cells across this one row. If they're not connected, then they're not arranged cells. Okay? And we can hide and unhide the columns, get, you're gonna do it from up top there, okay? Over here, under the format key, come down, the effect, a thing, come down and give you high and high. Okay? Let's delete the cells. Here, we can induct this down in the format, with that high and non high, or over here. Column width. That means you have to give it a specific number they ask for. Okay? Or you can do automatic auto fit power, you know, automatically fit, depending on how much dating you have an account. They'll ask you to do that a couple of different times. Okay, but like I said, the easiest way sometimes, unless you get a specific number they want, is to move this back and forth so that everything starts to fit. Have you seen the column with over here? It tells you the column with this 8.54 pixels, okay? And that means... a certain width, 9 inches or anything, it's a number of pixels in the computer puts out. So, if they tell you they want a specific number, the coloring is, like, 10 or 12 or 25, you can just type that in over. They'll pay, and all that... They have to highlight it go first. And then, this will, when we get into this on Monday, okay? Format. Like they said, put data in? What does it mean? Okay. I have data here. This is formatted data. What does this tell you? What do you think? Put the numbers down. You see, now there's something. That's for me. That's what it is. Hero, hero, sensa. Okay? Over here, we have percent again. You're just throwing in numbers. Yeah, it'll work, do what you wanted to do, but when you give that data, especially for somebody else, they have to understand what it means. Okay? Can you talk about money? Are you talking about marbles, okay? Some other numbers. So that's where we go in the format, so people don't understand what we're talking about. Okay? So we'll pick this up on Monday. Those of you who don't have your sticks, make

sure you get them. You're actually gonna start doing the simulation, chapter one. Okay? Well, I will find you that week, guys. Any questions? Hey, I'm nice speaking to you, man. Oh, by the way, did you do your picture? Oh, really? No, I was like... Yeah, I clicked on Monday. I took a hockey. Okay